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Redescription of *Cybaeus abchasicus* Charitonov, 1947, with the first description of the male (Aranei: Cybaeidae)

Переописание *Cybaeus abchasicus* Charitonov, 1947 с первописанием самца (Aranei: Cybaeidae)

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КЛЮЧЕВЫЕ СЛОВА: пауки, *Cybaeus abchasicus,* переописание, Кавказ, Абхазия, Россия, Краснодарский край, Адыгея.

ABSTRACT: Redescription of *Cybaeus abchasicus* Charitonov, 1947, on the basis of newly collected material is provided. The neotype is designated. Male of this species is described for the first time. Species was previously known from Abkhasia only. It is recorded from Russia for the first time.

РЕЗЮМЕ: По новому материалу приводится иллюстрированное переописание *Cybaeus abchasicus* Charitonov, 1947. Выделен неотип. Самец описан впервые. Вид был описан из Абхазии, впервые отмечен в России.

Introduction

Cybaeus L. Koch, 1868, is a genus with 116 described species occurring in Holarctic (only one species is described from Peru) [Platnick, 2010]. Most of species are distributed in the USA and Japan. Eight species are reported from Europe, mainly from the Alps [Maurer, 1992]. Five species are known from Russia, four of them are restricted to the Far East [Platnick, 2010]. Actual diversity of *Cybaeus* species in the Russian fauna seems to be much higher [Marusik, personal communication].

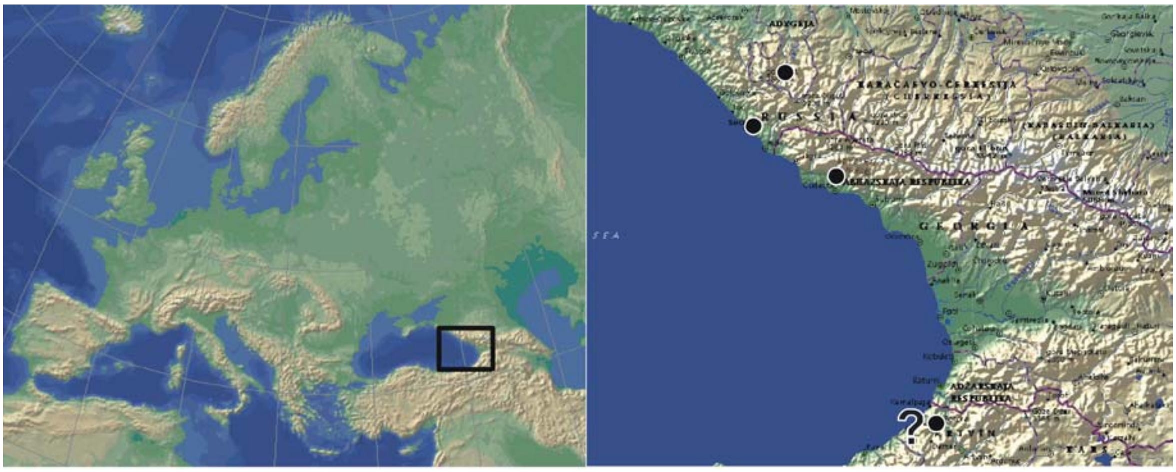
Two *Cybaeus* species were reported from Caucasus: *C. abchasicus* Charitonov, 1947, (from Abkhazia) and *C. angustiarum* L. Koch, 1868, (from Azerbaijan) [Mikhailov, 1997]. Record of *C. angustiarum* from Caucasus [Dunin, 1984] probably is misidentification of *Paracedicus feti* Marusik & Guseinov, 2003 [cf. Marusik & Guseinov, 2003]. *C. abchasicus* was described on the basis of prosoma of immature female only [Charitonov, 1947]. Brignoli [1978] described the epigyne of a female from Turkey. But it is quite possible that Brignoli's figure [Brignoli, 1978: f. 79] refers to *C. balkanus* Deltshev, 1997, or to a new species. Male of *C. abchasicus* remains unknown. Type locality of *C. abchasicus* is a cave near Gudauta [Charitonov, 1947]. In newly collected material we found the male of *C. abchasicus* from environs of Gudauta and similar males together with females from the Russian part of Caucasus (Krasnodar Province and Adygeya). So, the aim of this paper is to describe *C. abchasicus* species on the basis of adult male and female, and to provide new data about its distribution.

Material and Methods

Specimens for this study are deposited in the following collections: CP — personal collection of A.V. Ponomarev (Rostov-on-Don, Russia); PSU — Department of Zoology of Invertebrate, Perm State University, curator S.L. Esyunin (Perm, Russia); TNU — Zoology Department, V.I. Vernadsky Taurida National University, curator M.M. Kovblyuk (Simferopol, Ukraine); ZMUM — Zoological Museum of the Moscow State University, curator K.G. Mikhailov (Moscow, Russia).

Format of the description follows that of Deltshev [1997]. Coloration was described from specimens preserved in 75% ethanol/water solution. All measurements are in mm. All scale bars equal to 0.1 mm.

Terms for the copulatory organs used in the text and figures are as follow: *Ar* — anterior reservoir of



Map 1. Distribution of *Cybaeus abchasicus*.
Карта 1. Распространение *Cybaeus abchasicus*.

spermathecae; *Cd* — copulatory duct; *Co* — copulatory opening; *Dl* — distal lobe of patellar apophysis; *F* — epigynal fovea; *Fd* — fertilization duct; *S* — strong spine on male palpal tibia; *Se* — setae on dorso-prolateral side proximal lobe of patellar apophysis; *Pl* — proximal lobe of patellar apophysis; *Pr* — posterior reservoir of spermathecae.

Illustrations were made using both reflecting and transmitted light microscopes. Photos of epigyne (Figs 14–16) were made after maceration in KOH 20% water solution. Microphotographs were made with EVO-40 XVP (LEO 143 OVP) SEM in the South Scientific Centre RAS, Rostov-on-Don, Russia.

Description

Cybaeus abchasicus Charitonov, 1947
Figs 1–17.

C. a. Charitonov, 1947: 18-9, f. 2 (juv. ♀; holotype in the PSU, lost and not examined; ♂ **neotype** designated here, deposited in ZMUM).

C. a.: Brignoli, 1978: 508, f. 79 (♀).

PREVIOUS RECORDS. Abkhazia (Gudauta Distr.: Tarkiladze Cave) [Charitonov, 1947; Dzhanashvilli, 1965]; Turkey (near Artvin: Borcka Vil.) [Brignoli, 1978].

MATERIAL. RUSSIA. ***Krasnodar Prov***.: 1 ♂ (ZMUM; **neotype,** designated here), env. Sochi, Bzych Mt., 650 m a.s.l., forest, 11–19.07.2002, leg. P. Laguta. 2 ♂♂, 1 ♀ (TNU), same place, 11-19.07.2002, leg. P. Laguta. ***Adygeya Republic***: 4 ♂♂ (TNU), Caucasian Reserve, env. kordon Guzeripl, 43°58'N, 40°09'E, 985 m a.s.l., forest, pitfalls, 16–23.08.2009, leg. M.M. Kovblyuk; 32 ♂♂, 10 ♀♀ (CP-44.10.1/3), Caucasian Reserve, Pastbishche Abago Mt. range, 1750 m a.s.l., forest with *Acer,* pitfalls, 2.07–29.09. 2009, leg. Yu.A. Chumachenko; 60 ♂♂, 1 ♀ (CP-44.10.1/4), Caucasian Reserve, env. kordon Guzeripl, 1000 m a.s.l., forest with *Fagus, Abies,* pitfalls, 8.07–12.09.2009, leg. Yu.A. Chumachenko; 148 ♂♂, 23 ♀♀ (CP-44.10.1/5), same locality, pitfalls, 23.06–13.10.2009, leg. Yu.A. Chumachenko. ABKHAZIA. 1 ♂ (ZMUM, possibly lost), Gudauta Distr., 50 km N Gudauta, 30 km N from Achandara Vil., Gunarkhva, 12–14.08.2004, leg. P.P. Ivliev.

DIAGNOSIS. *C. abchasicus* is closely related to *C. balkanus*, but differs by having eight posterior cheliceral teeth (six in *C. balkanus*). Males differ also by the presence of spines on the distal lobe (*Dl*) of patellar apophysis and 2–3 long setae on the dorso-prolateral side of the proximal lobe (*Pl*) (both are lacking in *C. balkanus* [cf. Deltshev, 1997: f. 5–6]). Epigyne of *C. abchasicus* slightly differ from *C. balkanus* [see Deltshev, 1997: f. 7–9]) by larger anterior reservoirs (*Ar*) and relatively smaller copulatory duct (*Cd*).

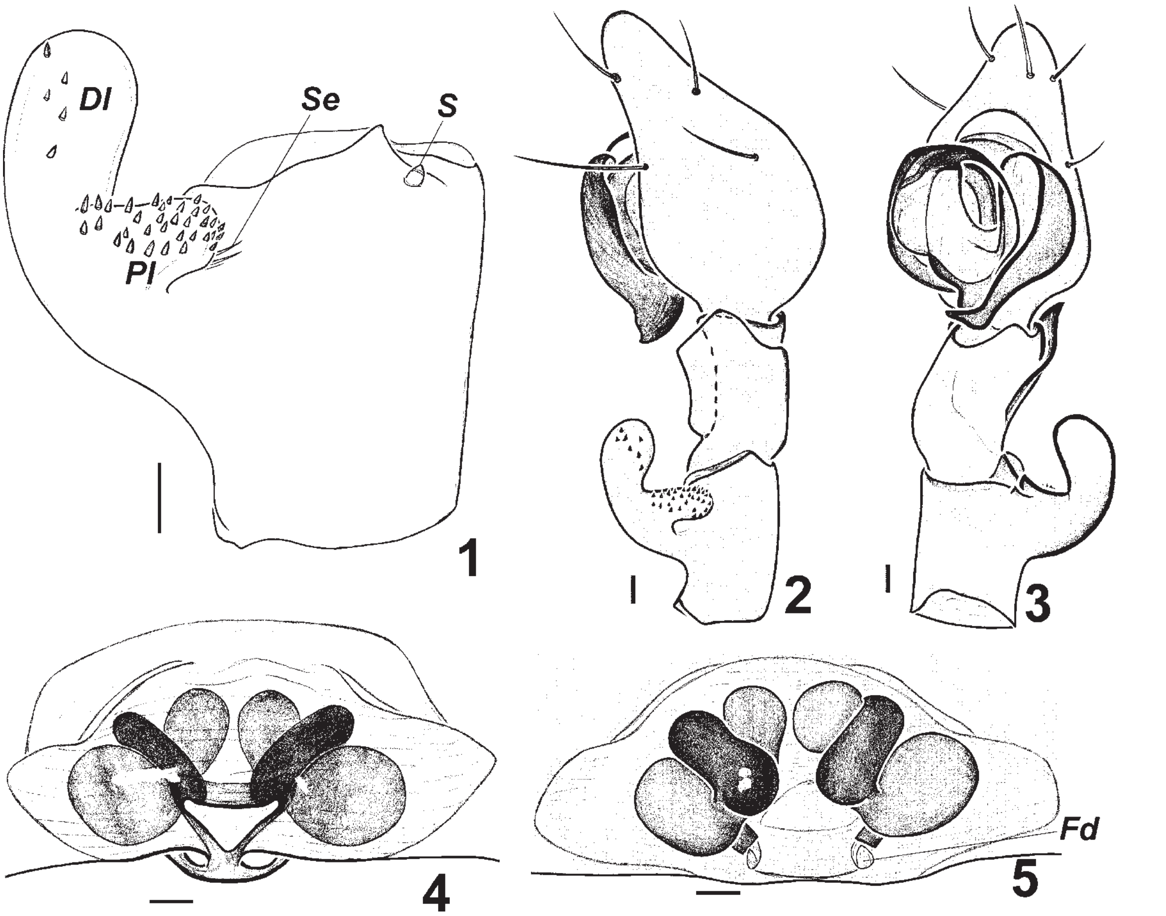
C. abchasicus differs from *C. angustiarum* [cf. Blauwe, 1973: f. 9–11] and from the generotype, *C. tetricus* (C.L. Koch, 1839) [cf. Nentwig et al., 2006] by the shape of the patellar apophysis (lacking proximal lobe in *C. angustiarum* and *C. tetricus*) and by the internal structure of epigyne.

DESCRIPTION. Measurements of male / female. Total length 7.0 / 7.3. Carapace 3.5 / 3.8 long, 2.4 / ? wide (carapace of female is deformed); abdomen 3.3 / 3.5 long; sternum 1.7 / 1.6 long and 1.5 / 1.5 wide. Carapace is similar in both sexes, brown with pattern as in Charitonov's drawing [Charitonov, 1947: f. 2]. Abdomen gray with pattern of 3-4 pairs of white marks, or uniformly colored without pattern. Chelicerae in both sexes dark brown, anterior / posterior margin with 3 / 8 teeth. Distal teeth larger than proximal teeth (Fig. 17). Legs brown, femora annulated. Femur I 2.9 / 2.9 long.

Male palp as in Figs 1–3, 6–13; patella with very characteristic apophysis with two lobes — distal pear-shaped (*Dl*) and proximal (*Pl*). Both lobes covered with short and stout dark spines, numerous in proximal lobe (25–30 spines), but rare in distal lobe (5–8 spines). Distal end of patella with one short, very strong, thick spine (*S*). Tibia with characteristic lateral furrow.

Epigyne and vulva as in Figs 4–5, 14–16. Epigyne with two pairs of reservoirs (*Ar* and *Pr*) and with copulatory duct (*Cd*) between them. Copulatory ducts open in copulatory openings (*Co*) in anterior corners of triangular epigynal fovea (*F*).

DISTRIBUTION. Mountainous forests on the eastern Black Sea coast: north to Sochi and Adygeya (Rus-



Figs 1–5. Copulatory organs of *Cybaeus abchasicus*: 1 — patella of male palp, dorsal-retrolateral view; 2 — male palp, retrolateral view; 3 — male palp, ventral view; 4 — epigyne, ventral view; 5 — epigyne, dorsal view.

Рис. 1–5. Копулятивные органы *Cybaeus abchasicus*: 1 — колено пальпы самца, дорсо-ретролатерально; 2 — пальпа самца, ретролатерально; 3 — пальпа самца, вентрально; 4 — эпигина, вентрально; 5 — эпигина, дорсально.

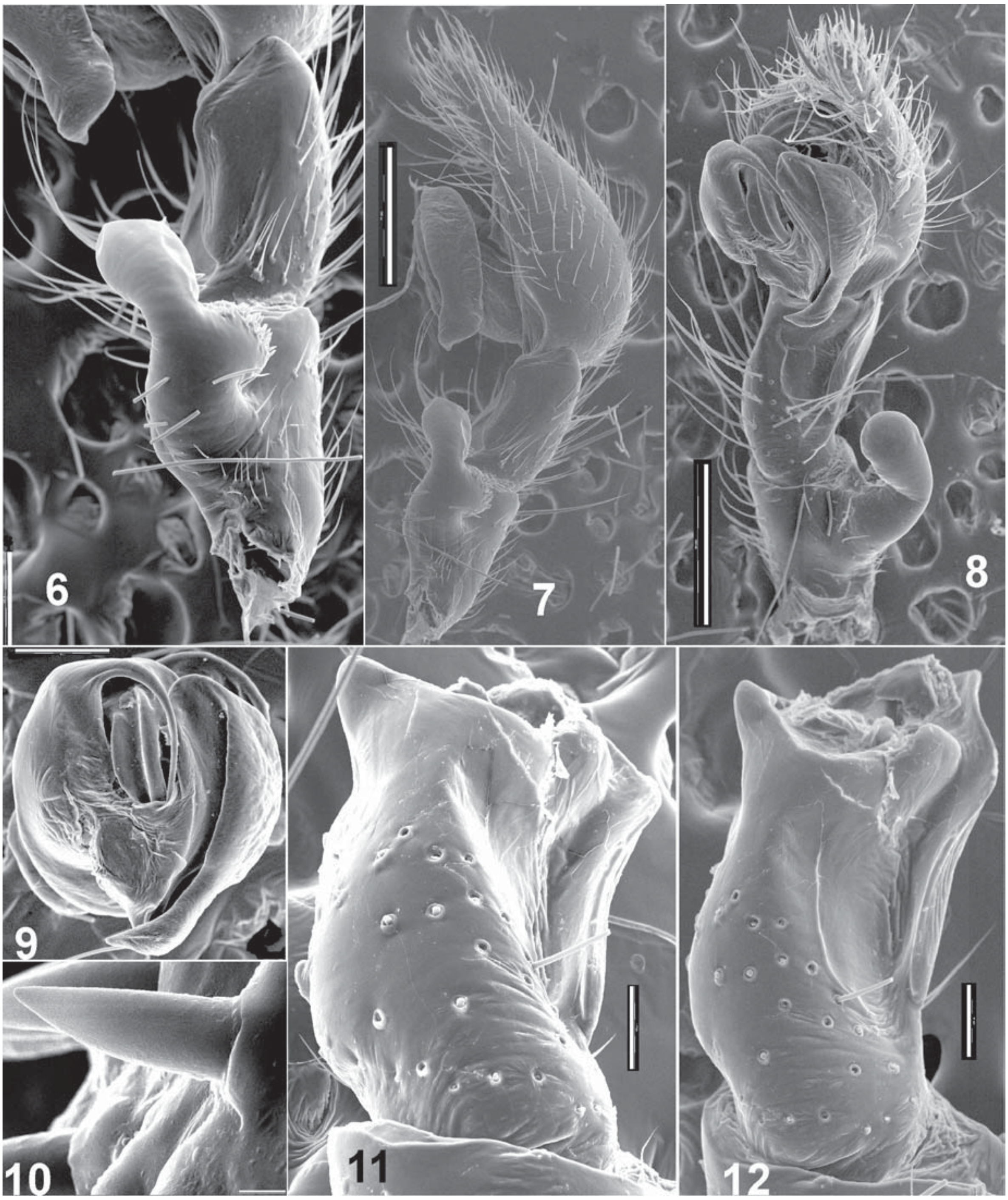
sia), south to Artvin (Turkey) (Map 1) [Charitonov, 1947; Brignoli, 1978; present data].

NOTE. *C. abchasicus* was described on the basis of prosoma of immature female only [Charitonov, 1947]. Collection of D.E. Kharitonov is deposited in PSU. Since only leg IV, tarsi I and III and chelicera are found in collection [S.L. Esyunin, personal communication, 26.VII.2010], the male collected near the type locality (environs of Sochi, Bzych Mt.) was designated as the neotype (deposited in ZMUM) in order to stabilize the taxonomic status of this species.

The presence of another species, *C. angustiarum,* in Caucasus is doubtful. Record of *C. angustiarum* by Dunin [1984] seems a misidentification of *Paracedicus feti* [cf. Marusik & Guseinov, 2003: 33].

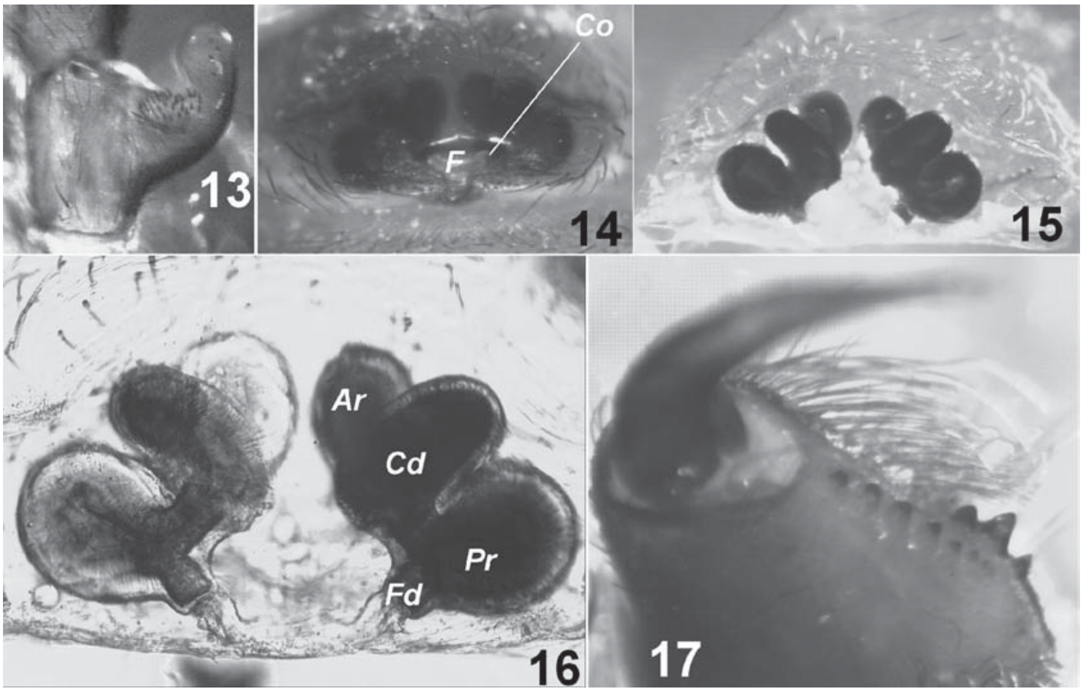
It is considered that *C. abchasicus* is the easternmost species of the genus *Cybaeus* in the West Palaearctic. *Cybaeus* has clear disjunction — between the West Caucasus and the Far East of Asia.

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Figs. 6–12. Male palp of *Cybaeus abchasicus*: 6 — patella and tibia of palp, retrolateral view; 7 — palp, retrolateral view; 8 — palp, ventral view; 9 — bulbus, ventral view; 10 — patellar spine; 11 — tibia of palp, prolateral-caudal view; 12 — tibia of palp, ventral-prolateral view.

Figs. 6–12. Пальпа самца *Cybaeus abchasicus*: 6 — колено и голень пальпы, ретролатерально; 7 — пальпа, ретролатерально; 8 — пальпа, вентрально; 9 — бульбус, вентрально; 10 — шип с колена пальпы; 11 — голень пальпы, пролатерально-сзади; 12 — голень пальпы, вентро-пролатерально.



Figs 13–17. Copulatory organs of *Cybaeus abchasicus*: 13 — patella of male palp, dorsal-retrolateral view; 14 — epigyne, ventral view; 15 — epigyne, dorsal view; 16 — epigyne, dorsal view (after maceration); 17 — female chelicerae, posterior view.

Рис. 13–17. Копулятивные органы *Cybaeus abchasicus*: 13 — колено пальпы самца, дорсо-ретролатерально; 14 — эпигина, вентрально; 15 — эпигина, дорсально; 16 — эпигина, дорсально; 17 — хелицера самки, сзади.

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